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### A Persistent Danger: Unexploded Ordnance in Populated Areas

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# A Persistent Danger: Unexploded Ordnance in Populated Areas



Norwegian People's Aid

The United Nations, the International Committee of the Red Cross, and the International Network on Explosive Weapons have convincingly documented that the use of explosive weapons (especially those with wide area effects) in populated areas (EWIPA) creates an unacceptably high risk of indiscriminate harm. As humanitarian mine action organizations working in urban environments, we see this harm being done in numerous conflict zones every day.

Discussion of the harm caused by EWIPA typically focuses on the immediate effects of these weapons when they explode, as well as reverberating effects leading to displacement; damage to vital services such as healthcare, water, and electricity; long-term psychological harm; and so on. But what of those weapons that, once launched, do not explode? These items, known as unexploded ordnance (UXO), are an insidious threat that can afflict civilians for generations. Any political declaration aiming to reduce the impact of EWIPA must therefore take UXO into account.

## What Gets Left Behind

Whenever a weapon is fired, dropped, launched, or projected, there is always a chance it will not explode and become an UXO. This chance (known as the “failure rate”) is highest when a munition’s fuse fails due to age, design flaws, or human error during the fusing procedure. But the environment where a munition is used is also a key factor. Failure rates provided by arms manufacturers are typically based on a munition’s performance in ideal conditions – which are far from the reality of urban warfare.<sup>1</sup> Indeed, a review by the United States Army after the conflict with the Islamic State in Iraq found that, “In Mosul, building construction (old and new) within the city centre presented challenging munitions survivability issues, mainly due to use of high-pressure concrete, steel reinforcement, and multiple stories; munitions survivability in terms of fusing and body construction in some instances did not meet the desired effect.” The research found that this “created a follow-on force hazard of unexploded ordnance,”<sup>2</sup> which could be repurposed by other armed actors, cause harm to civilians, and impede relief efforts.

During and after conflicts, UXO can be found all around towns and cities: on roads, in school yards, surrounding houses and hospitals, and in many other places where people carry out their daily activities. The presence of UXO can block access to food, water, and other basic needs, and obstruct civilians’ access to education or medical care. This contamination may drive people from their homes, prevent the return of refugees and internally displaced persons, and hamper the delivery of principled humanitarian aid.

UXO are especially dangerous for those civilians – particularly children – who do not recognize them as a threat. External efforts to educate the population about this danger may not always be effective, especially when hostilities are ongoing and humanitarian access is limited.

If left undiscovered or unaddressed, the threat posed by UXO in populated areas can persist for years – and even generations. UXO are still regularly found in urban areas of Europe affected by the First and Second World

Wars. And as the materials used to create these weapons degrade over time, the likelihood of accidental detonation increases.

When UXO do explode, they can cause casualties and serious damage to infrastructure. UXO with large explosive payloads are especially devastating due to the large blast or fragmentation radius they create. This harm is further magnified in urban areas, where debris from surrounding structures (such as metal, glass, and cement fragments) can create a deadly wave of secondary fragmentation.

## Clearance at Great Cost

UXO are cleared using a procedure known as battle area clearance (BAC). When done in open areas, BAC is relatively simple: Teams of deminers walking over an area can readily detect ordnance, using visual inspection or metal detectors, and remove it. Any UXO that are not safe to move are destroyed where they are found. But when UXO contaminate populated areas, BAC becomes far more complex, time-consuming, and costly. And the risk that UXO will not be found before causing casualties increases significantly.

In populated areas, the built environment dramatically increases the amount of area that must be searched for UXO, with each floor of a building a potentially contaminated area. Deep wells and drains where UXO become lodged may require excavation. Structures that were damaged by ordnance during conflict may have UXO inside them, and must therefore be searched thoroughly. Where the damage to such structures is significant, it may not be safe to conduct clearance without enlisting specialised engineers and armour-plated heavy machinery, which is costly to purchase and operate. All too often, the damage is so severe that demolishing the structure and handing back a mound of cleared rubble to its owner is the only safe option.

The lack of reliable strike data in many conflict areas further complicates the BAC process. If such data is not collected by armed actors, or not shared with mine action organizations, then it will be impossible to guarantee that areas are free from UXO without a complete inspection.

1. See, for example: International Committee of the Red Cross, “Weapon Contamination in Urban Settings: An ICRC Response,” July 2019; and Jacqueline MacDonald and Carmen Mendez, “Unexploded Ordnance Cleanup Costs: Implications of Alternative Protocols,” RAND Corporation, 2005.

2. United States Army, “Mosul Study Group: What the Battle for Mosul Teaches the Force,” September 2017, P. 57. <https://www.armyupress.army.mil/Portals/77/Primer-on-Urban-Operation/Documents/Mosul-Public-Release1.pdf>.

# Sinjar: A City in Pieces

The city of Sinjar, in northern Iraq, was devastated during conflict with the Islamic State in 2014. Innumerable weapons with wide area effects were deployed in the city, including 500 pound bombs, 120 mm mortars, conventional and improvised projectiles, and anti-personnel mines of an improvised nature – hundreds of which were left behind after conflict.<sup>3</sup> Roughly 70 percent of the Sinjar's housing stock was destroyed,<sup>4</sup> along with large parts of the city hospital,<sup>5</sup> schools, the primary water tank,<sup>6</sup> and government buildings such as the local land registry. Nearly 67 percent of Sinjar's road network was also rendered unusable by the conflict.<sup>7</sup> While some structures were specifically targeted by the Islamic State (including religious sites belonging to the Yazidi community), the subsequent bombardment caused large-scale destruction with reverberating effects. So much so that

more than five years after fighting stopped, and after more than 2,200 hours of work by humanitarian mine action agencies,<sup>8</sup> much of the city remains uninhabitable and thousands of residents have yet to return.

*"I was really sad when I saw our house totally destroyed and turned into ruins. I felt lost and afraid because my family and I hoped to find a sanctuary after all we went through during displacement." – Aryan, Sinjar<sup>9</sup>*

*"When we first returned back home we realized that everything was gone; that nothing was the same as it used to be... Every square meter that I clear is as important to me as clearing my own house and property. I consider all of this city my land and all of its people like my family." – Jihan, Sinjar<sup>10</sup>*

The complexity of BAC in urban areas makes the process extremely costly. Indeed, mine action organizations working in Iraq estimate that clearance of UXO in urban settings is six times more expensive than similar work done in rural areas.<sup>11</sup> The time required to conduct urban UXO clearance, and

the limited resources available for it, further increases the risk of civilian death, injury, and economic loss. Civilians returning to an area before it is cleared may attempt to dispose of UXO themselves, causing it to explode; or accidentally detonate it during reconstruction or repairs.

## Recommendations

**As members of the International Network on Explosive Weapons (INEW), we believe that an international political declaration on explosive weapons in populated areas must commit states to:**<sup>12</sup>

- Develop operational policies and procedures that will stop the use of explosive weapons with wide area effects in populated areas;
- Recognise the rights of direct and indirect victims and provide adequate assistance to their needs;
- Support and undertake data gathering including data on victims disaggregated by sex and age;
- Enable humanitarian and protection measures;
- Build a community of practice, including through regular meetings to discuss the issue and progress towards reducing harm; and
- Share positive practice and experiences.

**To reduce the effects of UXO in populated areas, we further recommend that the political declaration commit states to:**

- Collect, retain, and share data on the use of explosive weapons, and continually improve such data collection in line with best practice. This includes:
  - Using battle damage assessments and other tools that comprehensively record direct and indirect strikes,

including the date/location of the strike, the type/quantity of munitions used, and any civilian casualties which may have resulted

- Employing tools that attempt to distinguish between strike locations where ordnance has definitively exploded and strike locations where UXO may be present (treating all cluster munition strikes as potential UXO locations).
- Consistently sharing such strike records with national mine action authorities (or other responsible agencies), the United Nations, and non-governmental organisations, to facilitate rapid and efficient survey, clearance, risk education, and assistance to survivors.
- Provide comprehensive humanitarian assistance (including mine action activities such as survey, clearance, risk education, and victim assistance) in conflict-affected areas; or provide all necessary assistance to United Nations and non-governmental organizations with the capacity to do so.

- Ensure that victims – including injured persons, survivors, family members of people killed and/or injured, and communities damaged by conflict – receive adequate assistance based on their needs in a non-discriminatory manner. This should include emergency medical care, physical rehabilitation, psychosocial support and socio-economic inclusion, as well as support towards the full realisation of survivors' rights and their full participation in society.

3 & 8. Mines Advisory Group operations database. Accessed 14 January 2020.

4. Government of Iraq and the World Bank Group, "Iraq Reconstruction and Investment, Part II: Damage and Needs Assessment of Affected Governorates," January 2018.

5. REACH Initiative, "Rapid Overview of Areas of Return (ROAR): Sinjar and Surrounding Areas," May 2018.

6. Norwegian Refugee Council, "Multi Sector Rapid Needs Assessment of Sinjar Town," May 2018.

7. Government of Iraq and the World Bank Group, op. cit.

9 & 10. Interviews with Mines Advisory Group, January 2020

11. Mines Advisory Group internal estimates. Available upon request.

12. For more information, see: International Network on Explosive Weapons, "A Declaration to Prevent Harm from the Use of Explosive Weapons in Populated Areas," September 2019.